

REMARKS

This responds to the Office Action dated on February 13, 2006. Claim 15 is amended, claims 80-100 are canceled, and no claims are added. Claim 15 is amended to correct a typographical error. No new matter is added. Claims 80-100 were previously withdrawn in view of a restriction, and are now canceled without prejudice or disclaimer. Applicant respectfully reserves the right to file one or more divisional applications to pursue the canceled claims.

§103 Rejection of the Claims

Claims 54-71 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Han (U.S. Patent No. 6,611,452) in view of Coe (U.S. Patent No. 4,754,310). Applicant respectfully traverses. Applicant respectfully asserts that the rejection fails to provide a *prima facie* case for supporting a §103 rejection. Applicant responds to the rejection by first providing the requirements for a §103 rejection, then addressing the language of the claims, and then discussing the §103 rejections and the Response to Arguments contained in the Office Action dated February 13, 2006.

Requirements for a §103 Rejection

MPEP 2143 identifies the requirement for a *prima facie* case of obviousness: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations. According to MPEP 706.02(j), the Examiner should set forth the following in a §103 rejection: (A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate; (B) the difference or differences in the claim over the applied reference(s); (C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter; and (D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification. Additionally, this section states that it is important for an examiner to properly communicate the basis for a rejection so that the issues can be

identified early and the applicant can be given fair opportunity to reply. This is in agreement with 37 CFR §1.104. “The reasons for any adverse action or any objection or requirement will be stated in an Office action and such information or references will be given as may be useful in aiding the applicant . . . to judge the propriety of continuing the prosecution.” 37 CFR §1.104(a)(2). “In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.” 37 CFR §1.104(c)(2).

1. MPEP 2143.03 states: “To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).”

2. A *prima facie* case of obviousness must include objective evidence to combine the references. “The factual inquiry whether to combine references must be thorough and searching. It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions and cannot be dispensed with.” *In re Sang-Su Lee*, 277 F.3d 1338, 1343 (Fed. Cir. 2002). “[The] factual question of motivation to combine is material to patentability, and could not be resolved on subjective belief and unknown authority.” *Lee*, at 1343-44. “The board cannot rely on conclusory statement when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies.” *Lee*, at 1343.

Claim Language

Both independent claims 54 and 63 recite a memory cell comprising, among other things, an access transistor and a NDR diode connected between a diode reference potential line and a second diffusion region of the access transistor. The NDR diode recited in claim 54 is a p/i/n diode with a p-type anode and an n-type cathode, and the NDR diode recited in claim 63 is a n/i/p diode with an n-type anode and a p-type cathode. The entire claims are not repeated here for purpose of brevity.

The §103 Rejections And The Response to Arguments

1. *Applicant respectfully asserts that the rejection fails to provide a prima facie case because the rejection has not shown, in the combination of the cited portions of the references, all of the language of the claims.* Should the §103 rejection be maintained, Applicant respectfully requests the next action apply the language of the claims against the references to clearly identify the differences in the claims over the applied references, and clearly identify the portions of the references relied upon to show all of the claim language. For example, it is unclear to Applicant what is being relied upon to show an intrinsic region positioned between the anode and the cathode. The rejection relies on Coe as disclosing “a high voltage semiconductor device where in Fig. 1, the intrinsic region made up of alternating layers 11 and 12 is situated between anode and cathode 21 and 23.” Applicant disagrees. Region 11 is identified as being a first conductivity type (e.g. n-type), and region 12 is identified as being a second conductivity type (e.g. p-type). Col. 7 lines 41-45. Thus, the suggested combination of references would not provide, among other things, an NDR diode with an intrinsic region (e.g. an NDR p/i/n diode or an NDR n/i/p diode).

2. *Applicant respectfully asserts that the rejection fails to provide a prima facie case because the rejection has not provided objective evidence suggesting the desirability to combine Han and Coe.* Applicant respectfully submits that “to have a memory cell with higher performance” is conclusory, and does not provide objective evidence identifying why the combining Coe to the device of Han would provide higher performance. (See In re Lee).

The Response to Arguments provided in paragraph 1 of the Office Action dated February 13, 2006 merely recited *In re Keller* (the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art), and did not provide objective evidence to support the conclusory position that it would be obvious to those of ordinary skill in the art to combine the reference cells of Han with the high voltage semiconductor device of Coe “to have a memory cell with higher performance.” *In re Lee* is clear that the factual inquiry whether to combine references must be thorough and searching and based on objective evidence of record, and is also clear that this precedent (objective evidence) has been reinforced in myriad decisions and cannot be dispensed with. The pertinence of the Coe reference is not clear to Applicant. Should the rejection be maintained, Applicant respectfully requests the next action clearly explain the pertinence of each reference (37 CFR §1.104(c)(2)), and clearly state an objective rationale to combine the references.

For the reasons provided above, Applicant respectfully asserts that the rejection of claims 54-71 has not provided a proper *prima facie* case of obviousness. With respect to independent claim 54, Applicant is unable to find, among other things, in the cited portions of the Han and Coe references a showing or suggestion of a memory cell with a Negative Differential Resistance (NDR) p/i/n diode including a p-type anode, an n-type cathode, and an intrinsic region positioned between the anode and the cathode, as recited in the claim. With respect to independent claim 63, Applicant is unable to find, among other things, in the cited portions of the Han and Coe references a showing or suggestion of a memory cell with a Negative Differential Resistance (NDR) n/i/p diode including an n-type anode, a p-type cathode, and an intrinsic region positioned between the anode and the cathode. Claims 55-62 depend on claim 51 and are believed to be in condition for allowance at least for the reasons provided with respect to claim 54. Claims 64-71 depend on claim 63 and are believed to be in condition for allowance at least for the reasons provided with respect to claim 63. At least for these reasons, Applicant requests withdrawal of the rejection, and reconsideration and allowance of the claims.

Allowable Subject Matter

Claims 1-53 and 72-79 were allowed.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6960 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

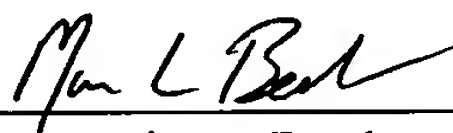
Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop AF, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 13 day of April, 2006.

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